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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,804	06/20/2001	Mohamed F. Madkour	64645-1043	4487
27045	7590	06/16/2005	EXAMINER	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR C11 PLANO, TX 75024			GHEBRETINSAE, TEMESGHEN	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/885,804

Applicant(s)

MADKOUR ET AL.

Examiner

Temesghen Ghebretinsae

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-16 and 23-28 is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,17,19,20 and 22 is/are rejected.
- 7) ☒ Claim(s) 2,5 and 18,21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/25/02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

1. It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

### *Information Disclosure Statement*

2. The references listed in the PTO-1449 filed 12/25/02 and 6/20/01 have been considered by the examiner.

### *Drawings*

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the **“interference canceller coupled to the channel emulator” and “a symbol estimator and interfere sequence detector of claim 13 and 14”**; **“the maximal ratio combiner coupled to the controller of claim 14”** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

4. Claims 1, 7, 14, 16, 17, 23 are objected to because of the following informalities: In claim 1, line 7 "the interference" should be ---than interference---the same is true in claim 7, line 11, claim 17, line 9 claim 23, line 13. In claim 14, "a controller coupled to the receiver and the antenna" should be --coupled to the receiver and the transmitter--- the same is true for claim 16. In claim 16, line 6 "the controller" should be --a controller-- -. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,3,4,6 and 17,19,20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lilleberg et al (5,905,946) in view of Richardson (4,878,251).

7. Lilleberg discloses a method for estimating channel parameters from a communication signal containing interference, the method comprising the steps of: Receiving a communication signal; processing the communication signal (see col. 3, lines 21-25 and col. 3, lines 50-54); selecting a maximum signal from the communication signal and generating an estimate of the channel parameters from the maximum signal (see col. 4, lines 1-9 and lines 30-35).

Lilleberg is different from the claim invention in that he is silent in terms of suppressing the interference when the maximum signal is not stronger than interference. (Lilleberg does teach though that the channel parameters of the signal are estimated on the basis of a signal, which has undergone interference elimination; see col. 4, lines 30-35). However, Richardson discloses an interference suppressor for a radio receiver comprising an interference suppressor for suppressing an unwanted signal having signal strength greater than the signal strength of wanted signal (see abstract; col.1, lines 30-45 and claim 1). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the Richardson's method of suppressing the interference in the method of Lilleberg to eliminate the unwanted signal that has greater signal strength than the wanted signal. The motivation to do so is disclosed in Lilleberg et al col.4, lines 30-35 (the channel parameters of the signals are estimated on the basis of a signal which has undergone interference elimination).

Regarding claims 3-4 and 19-20. The maximum signal or the signal having greater signal strength can be the wanted signal (the desired signal) or the interference signal (unwanted signal) see Lillberg et al col. 4, lines 1-9 and col4, lines 30-35 and Richardson col.1, lines 30-45.

***Allowable Subject Matter***

8. Claims 2,5,18,21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 7-16 and 23-28 are allowed.

10. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record (A novel Down link Blind interference cancellation in a W-CDMA IEEE Wireless sept.1999.and Subspace projection base blind interference cancellation scheme for W-CDMA IEEE1996) fails to anticipate or render obvious the claimed method for estimating channel parameters from a communications signal containing interference, the method comprising the steps of: receiving a communications signal; generating a base band signal from the communications signal; processing the base band signal to produce a first signal and a second signal; ***estimating a first channel parameter from the first signal and a second channel parameter from the second signal; suppressing the interference using a weighted average of the first channel parameter and the second channel parameter,*** repeating the steps of estimating the first and second channel parameters and suppressing the interference when the first signal is not stronger the interference; and

generating an estimate of the channel parameters from the first signal when the first signal is stronger than the interference as claimed in claim 7; and

An apparatus for estimating channel parameters from a communications signal comprising: an interference canceller coupled to a channel emulator; a descrambler coupled to the interference canceller; a correlator coupled to the descrambler **a channel estimator coupled to the correlator**; a maximal ratio combiner coupled to the correlator and the channel estimator; a symbol estimator and interferer sequence detector coupled to the maximal ratio combiner; a signal spreader coupled to the symbol estimator and interferer sequence detector; a scrambler coupled to the signal spreader; and the channel emulator coupled to the scrambler and the channel estimator as claimed in claim 13 ;and

An apparatus for estimating channel parameters from a communications signal comprising: a descrambler; a correlator coupled to the descrambler **a first channel estimator coupled to the correlator; a second channel estimator coupled to the correlator; a channel averaging device coupled to the first channel estimator and the second channel estimator**; a maximal ratio combiner coupled to the correlator and the channel averaging device; and a symbol estimator and interferer sequence detector coupled to the maximal ratio combiner, the first channel estimator and the second channel estimator as claimed in claim 15.

### **Conclusion**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents: 6,574,270; 5,537,443; 6,501,788 and 6,172,969 are

cited to show an apparatus and method for interference cancellation in spread spectrum.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temesghen Ghebretinsae whose telephone number is 571-272-3017. The examiner can normally be reached on Monday-Friday from 8 to 6. The examiner can also be reached on alternate .

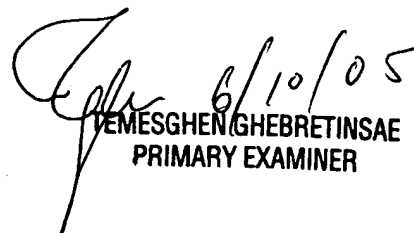
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Temesghen Ghebretinsae  
Primary Examiner  
Art Unit 2637

T.G.

6/10/05.

  
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